

**U.S. Army Corps of Engineers  
Spring Valley Restoration Advisory Board Meeting  
St. David's Episcopal Church  
Minutes of the July 8, 2008 RAB Meeting**

<b>RESTORATION ADVISORY BOARD MEMBERS PRESENT AT THIS MEETING</b>	
Mary Bresnahan	Community Member
Lawrence Miller	Community Member, Acting Community Co-Chair
Dan Noble	Military Co-Chair/USACE, Spring Valley MMRP Manager
Ambassador Howard B. Schaffer	Community Member
Bernard Schulz	Community Member
James Sweeney	Community Member
George Vassiliou	Community Member
John Wheeler	Community Member
<b>RESTORATION ADVISORY BOARD MEMBERS NOT PRESENT</b>	
Mario Aguilar	Community Member
Greg Beumel	Community Co-Chair
Dr. Peter deFur	Environmental Stewardship Concepts/RAB TAPP Consultant
David Feary	Community Member
Steven Hirsh	Community Member
William Krebs	Community Member
Lee Monsein	Community Member
Malcolm Pritzker	Community Member
Bert Weintraub	Community Member
<b>ATTENDING PROJECT PERSONNEL</b>	
Joyce Conant	USACE Baltimore
Emily Devillier	USACE Baltimore
Lan Reeser	USACE Baltimore
Maya Courtney	ERT, Spring Valley Community Outreach Program
Ray Bowman	Earth Resources Technology, Inc. (ERT)
Neil Jones	Earth Resources Technology, Inc. (ERT)

Jessica Bruland	Earth Resources Technology, Inc. (ERT)
John Williams	Weston Solutions, Inc.
<b>HANDOUTS FROM THE MEETING</b>	
I. Final Agenda for the July 8, 2008 RAB Meeting	
II. Handout of Corps of Engineers Presentation	
III. Handout of Geophysical Investigation Presentation	

## **AGENDA**

### **I. Administrative Issues**

#### **A. Co-Chair Updates**

Dan Noble, Military Co-Chair, welcomed the group and reviewed the agenda for the meeting.

#### **B. Introduce Guests**

Representatives from two Spring Valley environmental engineering contractors attended the RAB meeting: Ray Bowman and Neil Jones from Earth Resources Technology, Inc. (ERT), and John Williams from Weston Solutions, Inc.

#### **C. Announcements**

A RAB meeting will not be held in August 2008. The RAB will reconvene on September 9, 2008.

Ed Hughes, Spring Valley Program Manager, will return to the USACE Baltimore District in August and will adopt the position of Program Manager for all Baltimore District FUDS projects, including Spring Valley. He will no longer be specifically assigned to the Spring Valley project.

#### **D. Task Group Updates**

No task group updates were presented.

Larry Miller, Community Member, asked whether P. deFur had sent a document to members of the RAB, and several RAB members confirmed that they received P. deFur's monthly activity report.

### **II. USACE Topics**

#### **A. Geophysical Survey Process: Applied Technology and Analysis**

Neil Jones, Project Manager at Earth Resources Technology, Inc. (ERT), presented information on the geophysical survey process and its application at the WWI military munitions response program in Spring Valley.

John Williams, Senior Geophysicist at Weston Solutions, assisted with answering technical questions during the presentation.

Geophysical surveys are a non-intrusive method of discovering characteristics and features located beneath the ground surface.

Two primary devices are used to perform geophysical surveys in Spring Valley: the electromagnetic device and the magnetometer. They allow a geophysicist to record and store data in digital form, and download data for quantitative analysis. Two **photographs** of the specific devices used in Spring Valley were shown. The **EM61** (an electromagnetic device) and the **G-858** (a magnetometer) are both used during geophysical mapping. In addition, a Schonstadt magnetometer is employed in Spring Valley for detecting additional subsurface items during the actual intrusive investigation.

The **electromagnetic (EM) process** was described: An electrical current runs briefly through copper coils and generates a primary EM field, which permeates into the subsurface. If any conductive metals are buried in the vicinity, they will capture some of the energy in the primary EM field and produce a responding secondary EM field. As a result, the device can measure and record the secondary EM response between each primary EM transmission.

The **magnetometer** system was described: The G-858 magnetometer incorporates 2 sensors, an upper sensor and a lower sensor, that are spaced approximately 1 meter apart. Each sensor independently measures the total magnetic field. The difference between the two measurements is used to calculate the vertical gradient, a value which removes the effects of large-scale features like the earth's north-south magnetic field and solar flares, and in turn reveals the magnetic field of small localized metallic objects. The vertical gradient serves two purposes: it provides a more accurate measurement of the actual item, and it provides a more precise item location.

N. Jones presented the 6 steps involved in the typical **Spring Valley geophysical investigation process** and showed several **photographs** of the process. These steps take place after a property right-of-entry has been obtained. The geophysical survey team will perform steps 1-5, and step 6 will be performed by a separate field team certified to conduct anomaly removal efforts.

1. **GIS Data Query and Surface Feature Survey** – USACE contractor teams (ERT and CPJ) will gather information about the site and prepare for data collection. A surveyor will mark the site boundaries and stake out a general grid on the property. They will also develop a computer graphic or plat map of the land surface features (any surface objects on the property such as landscaping and utilities) that may inhibit full coverage of the site or affect the geophysical device's response. Typical survey properties have elaborate landscaping and other features that inhibit full geophysical coverage, but the geophysical survey teams try to avoid impacting the landscaping whenever possible.
2. **Geophysical Survey Grid Setup** – An official grid, based on the staked grid, will be established using plastic pin flags and a measuring tape. This grid will create lanes for data collection, ensuring that all accessible areas of the property are covered. All the data collected during the survey will be converted into a coordinate system for mapping the data in GIS.
3. **Geophysical Data Collection** – As the geophysical team surveys the property, data will be recorded in a portable memory card inside the device, similar to that of a digital camera.
4. **Geophysical Data Processing and Analysis** – The data collector will download and review the data for completeness. If any data gaps or evidence of equipment malfunctions exist, those areas will be flagged so that complete coverage can be obtained the next day. Once all data have been collected, a senior geophysicist will continue filtering the data and making any necessary corrections. The results of this data processing are as follows:
  - a. **Maps** – A map with EM readings and a map with magnetometer readings is produced for each property. Since the two instruments measure different characteristics at different depths, a single anomaly is represented differently on each map.
  - b. **Anomaly Lists** – Data are sorted into two anomaly lists: EM-detected anomalies and magnetometer-detected anomalies. At this point, perhaps 50 to 150 anomalies may be included for any given survey property. An **anomaly** is any geophysical reading that is detected above background levels for Spring Valley. Based on pre-defined background levels, any EM measurement above the threshold of 30 millivolts (mV) would be considered an anomaly in Spring Valley. The magnetometer threshold is measured in nanoteslas (nT).

- c. **Calculations** for each anomaly (e.g., diameter and surface area) are made and used as part of the prioritization of all anomalies detected on the property.
  - d. **Prioritization** – Any anomaly detected by both instruments is analyzed by if-then statements, which assign a priority level to that anomaly. (Anomalies detected by only one instrument may also be prioritized.) Priority A indicates a possible munition item buried less than 22 inches below ground surface (bgs). Priority B indicates a possible munitions item buried deeper than 22 inches bgs. Priority C means that the item has some but not all the characteristics of a WWI munition item. Priority D refers to an anomaly that does not display any characteristics associated with a WWI munition item.
  - e. **Refined prioritization levels** are assigned to each anomaly. The anomaly locations are compared to known areas of interest derived from historical information and aerial photographs. An anomaly that corresponds with a ground scar, target area, or range fan receives higher priority and a suffix of “1” (e.g., A1, B1, C1, D1). Anomalies with a suffix of “2” (e.g., A2, B2, C2, D2) do not correspond to known areas of interest and are thus prioritized lower. The final selected anomaly list may be reduced to 20 or 30 anomalies, depending on the individual property.
5. **Reporting and Review Process** – A Draft report is generated by ERT and then reviewed internally and by USACE districts in Baltimore and in Huntsville. The Draft Final report requires the same review process. The Anomaly Review Board (ARB), comprised of both USACE districts, EPA, and DDOE, will discuss and select the prioritized anomalies that should be investigated, creating a ‘dig list.’ The Final report will be generated, reviewed internally by ERT, and reviewed by both USACE districts. A copy of the approved Final report will be provided to the homeowner.
6. **Intrusive Investigation** – A separate contractor will obtain the ‘dig list’ and perform the intrusive anomaly investigation. Trained ordnance disposal crews will be present. A Schonstadt (a simple qualitative magnetometer), along with the GPS coordinates obtained earlier, will locate the center of each anomaly. All anomalies on the ‘dig list’ will be excavated, and the workers will sweep the area with the Schonstadt to ensure the item causing the anomalous reading has been removed. Typically, only 5 to 15 percent of these anomalies prove to be munitions-related (i.e., anything from a small fragment to an entire munition item). Many objects are cultural debris like bricks and other construction related items, but the conservative prioritization scheme ensures that no munition items remain in the ground.

As the new primary geophysical contractor on the Spring Valley project, ERT performed a **geophysical prove-out** (GPO) in April 2008. The purpose of a GPO is to evaluate the new contractor’s ability to perform the required work. The GPO tests all geophysical instruments, investigation methods (such as grid line spacing), and data collection rates.

The GPO site is located next to Sibley Hospital and mimics the setting of the Spring Valley properties that will be surveyed. Aspects such as geology, terrain, and vegetation can affect instrument readings, so performing a GPO on a site with similar characteristics provides expected background levels for use during the actual property surveys. This particular GPO site also exhibits EM and magnetic background noise, caused by cultural influences including traffic and utilities turning on and off, similar to the survey properties. In addition, the GPO site contains buried inert munitions and non-munition items that are typical for the Spring Valley area. These items were buried by USACE to test the geophysical equipment and to ensure that our contractors are able to accurately locate and characterize items that are present.

A **table** was shown that listed items buried on one of two investigation grids that ERT surveyed during the GPO. Many buried items (seeds) are items like those previously found in Spring Valley (e.g., Stokes mortar rounds and aluminum paint cans).

Two geophysical **maps** showed the EM and magnetometer responses to a single Stokes mortar round, buried 3 feet underground on the GPO site. The EM61 displayed an EM anomaly size of 64.3, and the G-858 magnetometer calculated a Magnetometer size (the anomaly diameter) of 2.3. These two values are used to prioritize the anomaly, and a **sample prioritization table** was shown with the possible combinations of EM and Magnetometer sizes. Based on the table, the detected anomaly was correctly identified as a B anomaly (a possible munition item located deeper than 22 inches bgs). During a property survey, any reading categorized as a B anomaly would likely be placed on the 'dig list.'

Question from Mary Bresnahan, Community Member – Regarding the two maps showing the instrument responses for the same property area, can you please explain what causes the two different responses?

N. Jones explained that each device measures a completely different aspect of the subsurface; therefore, the same response from both devices would not be expected.

Question from M. Bresnahan, Community Member – What information is being measured and what does the instrument response mean (Referring to a map being shown.)?

N. Jones replied that the map depicts a response from the EM61, the electromagnetic device that projects an energy pulse into the environment and measures the response. He confirmed that the EM device identified an anomaly in the shown map location.

Question from M. Bresnahan, Community Member – What does the second map reveal?

N. Jones replied that the second map, produced by the G-858 magnetometer, also shows that an anomaly is present in that location. On this map, small triangles represent anomalies. Although an anomaly was depicted on both maps, the different responses from each instrument work together to reveal additional information about the anomaly.

Question from Ambassador Howard B. Schaffer, Community Member – What determines whether or not this object is an anomaly?

N. Jones explained that a threshold value is set for each instrument, based on the GPO that established a background noise level typical for the area. For example, anything measured by the EM61 as above 30 mV is an anomaly, and any readings below 30 mV are considered background noise.

Question from L. Miller, Community Member – Could you please restate the units of measurement used for the magnetometer?

N. Jones said that the magnetometer measures readings in nanoteslas (where 1 tesla is the metric unit for a magnetic field). If Earth's entire total magnetic field was measured at a given outdoor location, it might measure in the range of 53,000 nanoteslas. In Spring Valley, however, the vertical gradient is measured, providing a small number of nanoteslas that represents the difference between two total magnetic field measurements in proximity to each other.

Question from Ambassador H. B. Schaffer, Community Member – How much does the electromagnetic device cost?

N. Jones replied that the current EM61 configuration costs approximately \$25,000 to \$30,000. The G-858 magnetometer used in Spring Valley costs a little more, due to the cost of the sensors.

J. Williams added that the cost of the magnetometer is approximately \$30,000 to \$32,000.

Question from George Vassiliou, Community Member – Regarding the diagrams of the EM and magnetometer results from the geophysical prove-out, what are the actual dimensions of the plot surveyed by ERT?

N. Jones replied that the survey plot dimensions measured around 50 feet by 75 feet.

Question from Nan Wells, Audience Member and ANC3D Commissioner – Based on my understanding of the electromagnetic and magnetic instruments, neither method can be used on road surfaces, correct?

N. Jones clarified that in some cases in Spring Valley, these instruments have successfully been used when surveying over asphalt. Often, however, bits of metal such as nails are mixed in with asphalt, affecting the results. Pavement surfaces, especially steel-reinforced concrete, often significantly influence geophysical responses from these instruments, and a very large item would have to be buried underneath the concrete to provide a good response.

J. Williams noted that the geophysical survey on Glenbrook Road detected all of the utilities present, and some good responses were obtained from underneath the asphalt. He confirmed that many driveways are reinforced or contain rebar, preventing good instrument readings.

Question from N. Wells, Audience Member and ANC3D Commissioner – Considering that the major roads in the Spring Valley FUDS site consist of asphalt, could these instruments be used to determine or suggest that anomalies are buried underneath the roads?

N. Jones said yes, and noted that success in surveying these roads will depend on the individual scenario.

Question from Kent Slowinski, Audience Member – To what depth are the EM and magnetometer technologies effective when conducting geophysical surveys in Spring Valley?

N. Jones replied that the effectiveness of these technologies depends on the size of the particular anomalies present. For example, a Stokes mortar round with a diameter of about 4 inches could be detected as deep as 3.7 feet below ground surface; however, this depth is only an estimate.

Question from K. Slowinski, Audience Member – If a 75 mm shell was buried beneath the surface, would the item be smaller than the Stokes mortar round and thus only detectable at a shallower depth?

N. Jones confirmed that using USACE-Huntsville's standard formula, which is based on the object's diameter, indicates that a 75 mm shell would only be detectable at shallower depths compared to a larger Stokes mortar round. However, if a complete shell and round was present, the length of the item might allow the item to be detected at a greater depth.

Question from K. Slowinski, Audience Member – Are the Spring Valley Partners involved in the geophysical prove-out?

J. Sweeney said that the Partners are not directly involved in this process.

Question from K. Slowinski, Audience Member – Why are the Partners not involved in the geophysical prove-out?

J. Williams replied that the GPO is intended to be an independent test of the contractor's abilities. Therefore, the GPO must be unbiased and must accurately represent the contractor's instrumentation and investigative methods.

Question from K. Slowinski, Audience Member – Is the data collected during the geophysical prove-out shared with the Partners?

D. Noble and J. Williams both clarified that the GPO data is shared with the Spring Valley Partners.

N. Jones added that approval of the geophysical prove-out results is probably provided by USACE-Baltimore and USACE-Huntsville personnel with geophysical expertise. The data may even be available to the public.

Question from N. Wells, Audience Member and ANC3D Commissioner – Who conducts the independent technical review and the third party review as part of the results reporting and review process?

N. Jones replied that these two reviews are conducted during the Internal Draft stage, before the Partners see the data and the report. The independent technical review is performed by a USACE contractor employee who is not involved with the Spring Valley project. The third party review for this particular contract will be performed by Weston Solutions.

Question from K. Slowinski, Audience Member – I would like to direct a question specifically to the Army Corps of Engineers. Why isn't a larger munition detection system, the MTADS, used for detecting AUES-related items in Spring Valley?

D. Noble said that the technical project personnel would be able to better answer that question.

J. Williams noted that the MTADS (Multi-Sensor Towed Array Detection System: a vehicle-towed platform equipped with electromagnetic and magnetic sensors, used for recording the presence and locations of buried munitions) is a large system whose size is not conducive to surveying residential properties. Although it would be more efficient to collect EM and magnetic data simultaneously, the use of MTADS in Spring Valley would be impractical, and the separate EM61 and G-858 instrumentation used in the geophysical surveys possess similar sensors to the MTADS.

Comment from K. Slowinski, Audience Member – The MTADS was successfully used along the C&O Canal for another project.

J. Williams replied that the MTADS must have been used in an open landscape, as the MTADS is a relatively large system. This would be difficult to accomplish in the numerous tight areas in Spring Valley.

L. Reeser added that MTADS is unsuitable for a residential setting due to the rough terrain, shrubbery, and landscaping that must be avoided.

N. Jones agreed, and said that MTADS might be feasible only if a property was cleared of all obstacles such as landscaping and retaining walls, and if residents were agreeable to letting a vehicle like an ATV drive over their property.

J. Williams noted that the equipment used in Spring Valley is essentially comprised of the same sensors and the same instrumentation; therefore, the Spring Valley surveys obtain the same data as an MTADS would collect.

Question from L. Miller, Community Member – Do these geophysical instruments need to be calibrated frequently, or are their abilities to collect accurate data considered to be stable? If they do need to be calibrated, how are they calibrated?

N. Jones confirmed that both the EM61 and the G-858 must be calibrated on a daily basis, and less frequently for internal instrument calibrations. Several quality control (QC) tests are included in the calibration process. For example, one QC test proves that the instrument operates consistently throughout a single day. In the morning, the instrument is set up on a stable stand so that no movement can occur. The static data is recorded for a specified time period without any objects present, and then a particular object is placed for instrument readings for a specified time period. At the end of day, this QC test is conducted again. The geophysical team expects to see the same response in the morning and the evening. If the data reveals varied responses, the data from that day is compromised and may need to be recollected.

J. Williams added that the geophysical survey requires a set of established data quality objectives. For example, one objective is that a constant speed must be maintained along a survey line during data collection.

Question from G. Vassiliou, Community Member – These two geophysical instruments have not been used in this capacity on the Glenbrook Road properties that are under investigation, correct?

D. Noble said that some initial surveying at the Glenbrook Road properties resulted in substantial data quality issues, due to interference from multiple retaining walls (some were reinforced with rebar and had extensive footers), patios, and other cultural features. The test pit grid approach for both properties was a more successful technique, considering the substantial interference.

N. Jones added that any paved surface results in a different geophysical response, and that cultural features are a primary issue on many properties. The background levels can change instantly during a geophysical survey if an air conditioner turns on.

Question from G. Vassiliou, Community Member – It appears that for data deemed reliable, munition items are identified in a consistent manner. After they are identified, are additional instruments used to detect information about the items such as their shapes, or are they simply dug out of the ground?

J. Sweeney replied that munition items are simply dug out of the ground, without use of additional instruments to better define the item.

N. Jones added that although additional item-specific information is not obtained, the Schonstadt magnetometer (along with GPS coordinates) is used to map the center of each anomaly.

D. Noble added that these anomaly locations are also marked by a surveyor before use of the Schonstadt. He noted that after the meeting, N. Jones can demonstrate how the geophysical instruments work for anyone who is interested.

## **B. Monthly Update on Phytoremediation, the Residential Arsenic Removal program, and the Groundwater Study.**

Emily Devillier of USACE-Baltimore provided an update on arsenic removal, phytoremediation, and the groundwater study.

### **Phytoremediation**

Edenspace continues to monitor and water the ferns as they grow. The ferns have been watered less frequently during the past couple of months as a result of storm systems moving through the area. The ferns are successfully recovering from significant prior stresses such as periods of heat and other weather-related issues.

Four **photographs** were shown of the newly-planted ferns in mid-May and the current growth status, featuring both Lot 15 and Rockwood Parkway.

### **Arsenic**

One property was completed in June. Soil removal on the property was delayed for part of June while permits with D.C. government were renewed. The D.C. government permits for this property and all remaining properties have now been updated through January 1, 2009.

Soil removal activities will begin this month at the 4800 block of Sedgwick Street and at Lots 33 and 34 on the American University campus near Hughes Hall.

Four **photographs** were shown of the arsenic remediation progress at a Fordham Road property. As of yesterday (July 8), all excavations on the property have been backfilled and will soon receive new sod.

### **Groundwater Study**

The contract was awarded for the groundwater study, and completion of the work plan is anticipated in mid-to-late August.

In June 2008, a USACE field crew visually assessed the proposed well locations, and they identified the optimal sites for installing the wells. These specific locations will be included in the work plan, and the same field crew will be responsible for installing the new wells.



### C. Military Munitions Response Program (MMRP)

D. Noble presented an update on the test pit investigations, the Pit 3 area investigations, and the AU Public Safety Building project.

#### Test Pit Investigation Monthly Update

The 5 remaining test pits at the property adjacent to the Pit 3 excavation on Glenbrook Road will be excavated following completion of the Pit 3 extensions.

The arsenic grids located in the driveway have been backfilled, and a temporary layer of gravel was placed on top. The driveway will be fully restored by the end of 2008, once the trucks and heavy machinery no longer need to access the property. Mulch was placed in the backyard in completed areas, however, a dirt access road going behind the house is still present as it will be used to access the far side of the house during the remaining excavations.

#### Pit 3 Area Project Update

Additional AUES-related items have been recovered since the last RAB meeting, including munition items and laboratory glassware.

A **photograph** was shown of an intact, sealed test tube containing remnants of a white solid substance. This test tube was recovered on June 13, 2008 and sent to the Edgewood Chemical Biological Center (ECBC), to analyze the contents. The test tube contained a compound called diphenylchloroarsine (DA), which was used as a chemical agent by the U.S. Army in WWI.

A **diagram** revealed where the test tube was found. Along with other laboratory glassware, the test tube was recovered adjacent to the enclosed manhole's concrete pad. As a result, the manhole and the active sewer line were removed to allow excavation of the soil underneath. A significant portion of the June field effort was spent removing the manhole, and 2 days were required to carefully reroute the active sewer line. The entire East Extension can now be excavated down to saprolite (the weathered bedrock).

The chemical identified in the test tube, DA (also called Clark 1), is a chemical irritant that is less toxic than mustard, lewisite, and arsine. This chemical is a vomiting agent, and it is informally referred to as a "mask breaker." This term refers to the use of DA during WWI when the first gas masks were used on the battlefield; although the gas masks successfully absorbed airborne fumes, very small particulates were able to penetrate the masks. DA, ground into very fine particles, would be released into the air and be breathed through the mask, causing soldiers to vomit. The soldiers would remove their masks and then suffer from a second-wave attack of a more toxic chemical.

DA was used as a chemical agent by the U.S. Army, but the compound is only considered a chemical agent if it is used in a weapon. According to the Code of Federal Regulations, Chemical Warfare Materiel (CWM) is officially defined as any chemical configured as a munition that is intended to kill, seriously injure, and incapacitate a person. The definition also lists exceptions, such as mustard-based and lewisite-based agents, which are always considered CWM regardless of their configuration.

This definition of CWM, as it relates to different chemicals, could potentially influence decisions made in Spring Valley. Initial decisions on low-probability versus high-probability protocols are made based on whether or not the presence of CWM is expected. Future decisions will determine an investigation to be a high-probability if an unanticipated chemical or configuration were recovered. This would depend not only on the type and definition of the item: CWM or MEC, but also after consultations with safety experts and reaching a consensus among the Partners.

- CWM found in a low-probability investigation, such as the AU Public Safety Building, would probably (99%) result in an upgrade to high-probability mode. For example, at Lot 18, the low-

probability protocols were upgraded to high-probability protocols when a small bottle with a very dilute solution of lewisite was discovered. Lewisite is always regarded as CWM.

- In contrast, non-CWM found in a low-probability investigation may or may not result in an upgrade to high-probability mode. If the small bottle found at Lot 18 had contained DA instead of Lewisite, the investigation may have remained in low-probability mode.
- CWM found at Pit 3 would not alter the investigation protocols, as the Pit 3 effort is already in high-probability mode.

Several **photographs** were shown of progress in the East Extension. The manhole and the concrete pad were removed, the PVC sewer line was replaced with a flexible sewer line, and both halves of the East Extension were excavated to the same depth. Shoring was installed in the structure, and another 2 to 3 feet of excavation is anticipated prior to reaching saprolite.

Two **diagrams**, a plan (overhead) view and a cross-section (side) view, of the original ECS and the East Extension were developed using surveyed and estimated elevations. These diagrams showed where all the Pit 3 items were found in relation to the bottom of the house, to address the long-standing question of whether munition items could be located beneath the house. The deepest munition items were recovered a few feet from the basement window well, and were located approximately 1 to 1.5 feet above the estimated house foundation (based on typical construction practices for the area). It appears that the builder excavated into saprolite prior to pouring the house foundation.

USACE will discuss with the property owner the possibility of coring through the basement floor, to confirm estimated construction details and to confirm that the basement slab sits directly on top of saprolite without dirt in between.

Completion of the East Extension is anticipated in late July or early August, and then construction of the South Extension will begin. Construction will take approximately 4 weeks, and removal of single-point anomalies will require approximately 1 week. The results of the investigation in the South Extension will determine whether the remaining anomalies along Glenbrook Road will be dug under low-probability or high-probability protocols.

Question from M. Bresnahan, Community Member – The definition of CWM was developed for the purpose of destroying munitions. In that case, DA would only be destroyed if it was found in a munition. Since the DA from Pit 3 was found in a test tube rather than a munition, it doesn't meet the definition for international destruction of weapons and it will remain a low priority, correct?

D. Noble confirmed that the CWM definition was designed for weapons destruction, but clarified that the DA found in the test tube will still be destroyed. He also confirmed that the definition of CWM helps determine whether an investigation should remain low-probability or upgrade to high-probability.

He added that the initial low-probability versus high-probability decision is based on whether the crew expects to encounter CWM or munitions or explosive on concern (MEC). The decision to upgrade to high-probability is based on the specific property and the individual item. Although the test tube with DA does not fit the definition of CWM, depending on the circumstances, this discovery might convince the Spring Valley project team to upgrade the dig to high-probability if it were found during a low-probability dig.

Question from M. Bresnahan, Community Member – Isn't arsine a more dangerous chemical than mustard gas?

D. Noble was uncertain as to whether arsine could be considered more dangerous than mustard gas, but it is certainly a very toxic substance.

M. Bresnahan commented that according to the CWM definition, arsine found in a munition is considered to be CWM and arsine found in a gas bottle is not, while mustard gas is always considered to be CWM.

D. Noble said that the specific definitions do not necessarily match the toxicity of the chemicals; for example, phosgene is extremely toxic but is only labeled as CWM if it is configured as a military munition. In the treaty from which the CWM definition was derived, mustard was one of the chemicals discussed, and mustard is always regarded as CWM just like lewisite is always regarded as CWM.

L. Miller suggested that while some substances may be extremely dangerous even when not weaponized, other substances may be fairly inert when they are not used in a munition item and thus are unable to spread easily.

D. Noble agreed. He said that DA, which is a solid, must be physically aerosolized (e.g., during an explosion) in order to have an effect. Observing a broken test tube containing DA is unlikely to present a threat unless the solid substance comes in direct contact with the person's skin, eyes, or nose.

Question from M. Bresnahan, Community Member – Can you provide the year in which the treaty was signed?

D. Noble was uncertain of the treaty date, but he noted that the CWM definition is still current and is incorporated into the current Code of Federal Regulations.

Question from M. Bresnahan, Community Member – Since the Pit 3 investigation is situated in a residential neighborhood, would a DA discovery possibly upgrade the work to high-probability?

D. Noble agreed that the residential setting is certainly an important consideration.

Question from L. Miller, Community Member – Would your decision to investigate under low-probability or high-probability protocols determine what precautions will be taken?

D. Noble said yes. Different precautions are taken for low-probability versus high-probability investigations.

Question from N. Wells, Audience Member and ANC3D Commissioner – A CWM discovery would not change your decision to excavate a property, correct? Finding CWM would only change your approach to the investigation.

D. Noble confirmed that a CWM discovery would only influence how the current excavation should progress.

Question from K. Slowinski, Audience Member – At what depth was the test tube found in the East Extension?

D. Noble replied that the test tube was found approximately 4 to 5 feet deep, based on the ground surface elevation of the south (uphill) side of the retaining wall at the base of the manhole structure

Question from K. Slowinski, Audience Member – It appears, then, as though the test tube was found behind the retaining wall, where an earlier test trench was dug. Why wasn't the test tube found during the test trench excavation?

D. Noble and L. Reeser confirmed that a test trench was previously dug behind the retaining wall. The test tube was buried adjacent to the manhole, and because the manhole is located at the very end of the retaining wall, the test trench would have extended from the back of the property to the area close to, but not including the manhole.

Question from Ambassador H. B. Schaffer, Community Member – Regarding the possibility of munition items located underneath the house, do you suspect that the house builder discovered items and covered them with the house foundation?

D. Noble replied that based on the diagrams with known and estimated elevations, any AUES-related items that may have been located underneath the house were probably moved during the building of the house, as the house is set into saprolite.

Ambassador H. B. Schaffer suggested that the builder may have found items without regarding them as anything of importance.

D. Noble added that AUES-related items may not have been located underneath the house to begin with.

### **AU Public Safety Building Project**

The Public Safety Building investigation focuses on 3 clusters of single-point anomalies, 2 anomalous areas, an area of elevated metal concentrations in the utility trench area, and trenches in the debris field (the back patio area). A **map** was shown of these areas surrounding the Public Safety Building.

Site preparations for the investigation began on June 9, 2008. These activities included a building inspection, installation of building monitoring devices, and marking all 12 single-point anomalies in the front yard with small flags.

Intrusive activities began on June 25. All 12 single-point anomalies have been resolved, and the investigative trenches in both anomalous areas have also been excavated.

The final setup for the debris field is currently being prepared, and intrusive activities will begin in the debris field area during the week of July 14.

**Photographs** were shown of several resolved anomalies, including a root basket used during landscaping, bent and twisted pieces of rusty metal, an old car part, and a stone monument (possibly a property marker) that was left in place underground. In addition, two small empty bottles were discovered in an anomalous area investigative trench. Both bottles were open glass vials with crimped tops, and archaeologists are attempting to determine whether these bottles post-date WWI or whether they could have been present during AUES activities.

Since trenches in the debris field will be excavated to fairly deep elevations and close to the Public Safety Building, the intrusive investigation involves two monitoring techniques that will help maintain the stability and safety of the building. Two **photographs** were shown, one of the crack monitors and one of the reflector points.

Crack monitors were installed to detect whether existing cracks in the building foundation expand during the intrusive effort. These monitors measure the relative foundation position on either side of the crack, and they will be read daily to check any movement in the building foundation's sides.

Reflector points are small targets installed along the building foundation that enable monitoring of the building's movement. A laser instrument is set up on a weekly basis at a certain elevation and distance, and an exact laser bulls-eye is recorded for that point. Under ideal conditions, the exact bull's-eye will be obtained each week, but any settling or sideways movement of the building foundation will produce a drift in the laser.

Question from Ambassador H. B. Schaffer, Community Member – Can you please explain what is meant by “resolved” anomalies?

D. Noble explained that resolving an anomaly refers to pursuing the cause of an anomalous reading registered by the geophysical instruments. The field crew digs up the anomaly, and once the anomaly's source is identified it is considered resolved.

Question from Ambassador H. B. Schaffer, Community Member – How old is the Public Safety Building?

B. Schulz replied that the building was originally constructed in 1953 as a fraternity house.

### **III. Community Items**

Question from G. Vassiliou, Community Member – Regarding the map of the Public Safety Building investigation areas, could you please identify the drums located on the map?

D. Noble explained that these objects are large Baker tanks, whose purpose is to store and remove excess groundwater from the site. The groundwater elevation is high behind the Public Safety Building, and an interceptor trench is present to prevent groundwater from interfering with the debris area excavations. As groundwater flows into the interceptor trench, a pump placed in the bottom draws out the groundwater.

He added that the groundwater will be pumped into the Baker tanks, and when a tank is full, the contents will be analyzed. Water that is safe for discharge, according to the DCWASA permit, will be released into a sanitary sewer. Any water that is not safe for discharge will be pumped into a drum and delivered to a water treatment plant.

Question from N. Wells, Audience Member and ANC3D Commissioner – During the groundwater study, will you be testing for the presence of perchlorate?

D. Noble confirmed that perchlorate is included on the long list of metals and chemicals that will be tested for during groundwater sampling. Other substances that will be tested for include arsenic, volatiles, and semi-volatiles.

Question from N. Wells, Audience Member and ANC3D Commissioner – A resident recently approached me with the following question as they are undergoing their third year of phytoremediation: What happens when the phytoremediation effort is unsuccessful on a property?

D. Noble said that arsenic concentrations can always be excavated if the property owner approves. Another option is to leave arsenic levels below 43 ppm in place, if the property owner feels comfortable with receiving a comfort letter from the regulators stating that the property has been cleared with the exception of arsenic levels between 20 ppm and 43 ppm. However, if the arsenic concentration is above 43 ppm, and ample phytoremediation efforts cannot reduce the arsenic to a level below 43 ppm, the only course of action is to excavate the arsenic-contaminated soil.

Question from K. Slowinski, Audience Member – During a RAB meeting in 2007, I asked how deep the original burial pit munitions were located in the Pit 3 investigation area. The answer I received was that the munitions were found 12 to 15 below ground surface. During tonight's presentation, the Plan View of the Pit 3 original ECS and the East Extension revealed that the house footer is situated 11 feet below ground surface, with a possible additional 1 foot for house foundation materials. Taking these estimated depths into account, is it possible that munitions are located underneath the house?

D. Noble clarified that the different elevations on the opposite sides of the retaining wall must be accounted for. The ground surface elevation at which the 2003 excavation of the burial pit was approximately 6 feet above the ground surface elevation in the current ECS and East Extension. The 12 to 15 foot depth noted at the meeting last year was estimated based on the higher ground surface elevation on the opposite side of the retaining wall. The measurement of 11 ft below ground surface was taken from the lower side of the retaining wall, thus placing the munition items from both excavations within the same depth range. Also, the 55 gallon drum left underground during the 2003 excavation was encountered around the same elevation as the munitions recovered during the Pit 3 excavation this year.

Question from K. Slowinski, Audience Member – Have discussions progressed among the Partners regarding the possibility of interviewing the contractors who were involved in the excavation and construction of the house, the retaining wall, and the sewer line? The purpose of these interviews would be to ask whether the workers uncovered any AUES-related items and where they may have placed them.

D. Noble confirmed that this is an ongoing effort, and that EPA is taking the lead in contacting the builder to request information. By September, S. Hirsh may be able to share any accomplishments to date.

Question from K. Slowinski, Audience Member – In addition to the builder, does the effort include contacting other people involved in building the sewer line, the retaining wall, and the house?

D. Noble replied that part of the effort involves asking the builder to identify his subcontractors.

Question from K. Slowinski, Audience Member – Does D.C. have any information on who built the sewer line? Did they need permits to build the sewer line?

D. Noble said that the original sewer line was already present before the builder began constructing the house. The builder installed a series of 2 to 3 manholes behind the retaining wall, rerouted the original sewer line, and spliced the new rerouted PVC sewer line into the original cast iron line that was already present. Rerouting a sewer line may require a specific permit, or it may simply be covered by the general building permit.

Question from N. Wells, Audience Member and ANC3D Commissioner – Last year, I asked to see data from the previous dig on the embassy property. I was told the data was unavailable because it was incorporated into a preliminary report that was never completed. At the conclusion of the Pit 3 effort, will the data on both the previous dig and the current dig be made available to the public?

D. Noble confirmed that once Pit 3 is complete, the data from both efforts will be combined into a single report. The final report will be available to the public, and will include details regarding both efforts.

Question from N. Wells, Audience Member and ANC3D Commissioner – Can you provide an estimate of when the final report will be available? The community has waited a long time to see the results from the previous property.

D. Noble replied that each Pit 3 extension shifts the report further into the future. Once all current Pit 3 field work is complete, a comprehensive report will be finalized and made publically available.

#### **IV. Open Discussion and Future RAB Agenda Development**

##### **A. Next Meeting: September 9, 2008**

The RAB will not meet in August 2008, and will reconvene on September 9, 2008.

##### **B. Future agenda topics**

- History of Chemicals and Munitions used in WWI and AUES
- Encore of Dr. Monsein's Presentation on Arsenic Issues: Chemistry, Medical Aspects, and Risk Management
- Legal Requirements for Real Estate Disclosures
- Johns Hopkins University Presentation on Draft Work Plan for Health Study Update

Question from L. Miller, Community Member – One suggestion made at the last RAB meeting was to have a presentation focused on the history of chemicals and munitions used in WWI and AUES. Has a potential presenter been identified for this topic?

J. Wheeler requested that this topic be presented later in the fall, as he will not be attending the September meeting and is very interested in that particular presentation.

Question from L. Miller, Community Member – Who is pursuing the presentation topic of legal requirements for real estate disclosures, and how long is the presentation expected to take?

M. Bresnahan said that she and G. Beumel are working on the real estate topic, which will be presented by a real estate lawyer. The time required for this presentation is uncertain, as the overall facts should take no more than 5 minutes, but questions and discussion from the RAB and the audience may lengthen the presentation.

Suggestion from N. Wells, Audience Member and ANC3D Commissioner – A recent article regarding groundwater issues at Fort Detrick focused on a plume of groundwater and how the plume moves through

the area. A comprehensive presentation that focuses on groundwater in Spring Valley would be very informative, including how the new set of wells will give us a better understanding of groundwater movement, and future plans for examining groundwater issues in Spring Valley.

M. Bresnahan agreed that this is a good suggestion. She added that the groundwater plume discussion in the article was similar to Spring Valley groundwater plume discussions.

D. Noble noted that qualified people will likely be available for this presentation.

Comment from L. Miller, Community Member – Regarding Dr. Monsein's proposed presentation on arsenic issues, I would be interested in hearing about this topic.

Several other community and audience members expressed interest in the presentation.

Question from Ambassador H. B. Schaffer, Community Member – Is there anyone present at the RAB meeting tonight who heard Dr. Monsein's original presentation on arsenic issues? How long did the presentation take?

Several community and audience members confirmed that they had attended the presentation.

J. Sweeney said that the presentation took about 20 to 30 minutes.

Question from N. Wells, Audience Member and ANC3D Commissioner – Dr. Monsein is a neural radiologist, correct? I am not familiar with his background. Does he have expertise in chemical contaminants and related issues?

L. Miller was fairly certain that Dr. Monsein has an educational background in chemical contaminants, and possibly hands-on experience as well. The RAB will ensure that all presenters are qualified to discuss their topic.

Suggestion from K. Slowinski, Audience Member – In addition to the arsenic information that Dr. Monsein proposed to discuss, the presentation could include other chemicals found at toxic levels in Spring Valley. In particular, lead, mercury, vanadium, lewisite, and perchlorate could be discussed.

L. Miller acknowledged that these chemicals are all good suggestions for the presentation. In terms of ranking chemicals, arsenic would be the primary topic based on findings in the Spring Valley project. The presentation may be limited to arsenic, or 1 to 2 additional chemicals may be added, depending on the time allotted and Dr. Monsein's comfort level and qualifications for discussing additional chemicals.

Comment from N. Wells, Audience Member and ANC3D Commissioner – Regarding presentations focused on additional chemical contaminants, contacting additional presenters for these topics would be a good idea.

M. Bresnahan noted that at a public meeting in 2001, an independent medical doctor presented an arsenic report suggesting that Spring Valley arsenic levels did not present a health risk to the residents.

G. Vassiliou asked whether the M.D. was a specialist.

M. Bresnahan said yes, and commented that many meeting attendees were not pleased with his approach to the arsenic contamination in Spring Valley.

K. Slowinski asked if M. Bresnahan was referring to an arsenic expert named Dr. Steven Lamm and M. Bresnahan confirmed this.

K. Slowinski recommended not contacting him again.

L. Miller noted that the validity of such a perspective on arsenic depends on whether the presenter can support their position with facts. He added that EPA experts on arsenic and other chemicals can be contacted, and that the most highly-qualified people can be invited to give a presentation.

Question from K. Slowinski, Audience Member – Would someone from the EPA feel qualified to discuss those chemicals and risk assessment issues?

L. Miller said EPA contacts would certainly have the expertise to discuss these additional chemicals. However, their availability will determine whether they are likely presenters.

Question from Ambassador H. B. Schaffer, Community Member – Is it preferred to have one presentation topic per meeting?

L. Miller confirmed that one special topic is typically presented during each RAB meeting. However, presentations can be combined if one or both are likely to be short, such as the discussion on legal requirements for real estate disclosures.

Comment from L. Miller, Community Member – The RAB has no control over the timing for the Johns Hopkins University presentation on the Draft Work Plan for the Health Study. We have a few topics to balance among the fall 2008 RAB meetings. Dr. Monsein will be asked to present the arsenic topic at the September meeting, if he is amenable to that. The presentation on the history of WWI/AUES chemicals and munitions can potentially be presented in October, and hopefully the Army Corps is able to identify a qualified speaker for that topic. The real estate topic can be presented whenever it is prepared, and if time limitations exist, it can be deferred to the following meeting.

## **V. Public Comments**

Patrick Leibach from Councilwoman Mary Cheh's office announced that he will no longer be attending RAB meetings, as he is returning to school. He introduced Dan Moring, who will be replacing him at Councilwoman Cheh's office and at the RAB meetings.

K. Slowinski, N. Wells and RAB members all thanked P. Leibach for his efforts on the Spring Valley project and for initiating the involvement of Councilwoman Cheh's office and welcomed D. Moring.

## **VI. Adjourn**

The meeting was adjourned at 8:42 PM.